



Texaco Refining  
and Marketing Inc

10 Universal City Plaza  
Universal City CA 91608

January 12, 1998

**ENV - STUDIES, SURVEYS, & REPORTS**

**500 Grand Avenue  
Oakland, California**

Ms. Susan Hugo  
Alameda County Environmental  
Health Department  
1131 Harbor Bay Parkway  
Alameda, CA 94502-6577

Dear Ms. Hugo:

This letter presents the results of groundwater monitoring and sampling conducted by Blaine Tech Services, Inc. on November 5, 1997 at the site referenced above .

If you have any questions or comments regarding this site, please call the me at (818) 505-3113.

Deborah R. Pryor  
Project Manager  
Texaco Refining & Marketing Inc. - EH&S

DRP:hs  
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Enclosure

cc: Mr. Richard Hiatt  
CRWQCB - San Francisco Bay Region  
2101 Webster St., Suite 500  
Oakland, CA 94612

Mr. Keith Winemiller  
Pacific Environmental Group, Inc.  
2025 Gateway Place, Suite 440  
San Jose, CA 95110

RAOFile-DRPryor

pr: RA

83 JUN 21 AM 9:28  
ENVIRONMENTAL  
REGISTRATION

**QUARTERLY SUMMARY REPORT**  
Former Texaco Service Station/Current Parking Lot  
500 Grand Avenue, Oakland, California  
Alameda County  
Fourth Quarter, 1997

**SITE HISTORY**

A site preliminary subsurface investigation was conducted in May 1988. During the initial investigation, a soil gas survey was conducted, 15 soil borings were drilled, and 5 on-site groundwater monitoring wells were installed. In 1989 5 off-site wells were installed. The initial 5 on-site wells have been abandoned and replaced by 2 wells located at the southern perimeter of the site. Over 2,400 cubic yards of hydrocarbon-impacted soil have been excavated and removed from within the property boundaries. The waste oil tank, tank backfill material, and impacted soil were excavated and disposed of in September 1990. Clay sewer pipes and contaminated soil from an abandoned utility trench near the former waste oil tank were removed from the site in early 1991. Site structures, 3 underground storage tanks, dispenser islands and associated piping, and stockpiled soils were removed from the site in April 1992. The excavated area was backfilled and compacted using clean imported material.

**WORK PERFORMED THIS QUARTER**

Implemented reduced groundwater monitoring and sampling program.

**CHARACTERIZATION STATUS**

All petroleum impacted soils underlying the site, with a possible exception of a very narrow band along the Grand Avenue sidewalk, have been removed by the extensive soil excavation activities. Groundwater at the site has been affected by gasoline, diesel, and hydrocarbons above the range of diesel. Since the removal of on-site contaminated soils, significant reductions in TPH-g and TPH-d concentrations in groundwater have been reported for samples taken from on- and off-site wells.

**REMEDIATION STATUS**

No further investigation or remediation of the vadose-zone soils is planned. It is proposed that down gradient wells continue to be monitored to document the biodegradation of the remaining dissolved-phase hydrocarbons in the groundwater. Oxygen release compounds were installed in December 1996 in selected wells to enhance the natural in-situ biodegradation process.

**WORK TO BE PERFORMED NEXT QUARTER**

Implement reduced groundwater monitoring and sampling program, and monitor the ORC. Replace ORC.

**WATER SUPPLY WELL**

In 1997, there were no known drinking water supply wells within a 1/2 mile radius of the site.

## **CONTACTS**

**TRMI EH&S (Texaco)**

**Ms. Deborah Pryor  
Project Manager  
(818) 505-3113**

**Exxon Company, U.S.A.**

**Ms. Marla Guensler  
Environmental Liaison  
(510) 246-8776**

**Lead Regulatory Agency**

**Ms. Susan Hugo  
Alameda County Health Care Services Agency  
(510) 567-6780**

**Property Owner**

**Exxon Company, U.S.A.**

**Groundwater Monitoring and Sampling  
Fourth Quarter, 1997  
at the  
Former Texaco Service Station  
500 Grand Avenue  
Oakland, CA**

**QUARTERLY SUMMARY REPORT**  
Former Texaco Service Station/Current Parking Lot  
500 Grand Avenue, Oakland, California  
Alameda County  
Third Quarter, 1997

**SITE HISTORY**

A site preliminary subsurface investigation was conducted in May 1988. During the initial investigation, a soil gas survey was conducted, 15 soil borings were drilled, and 5 on-site groundwater monitoring wells were installed. In 1989 5 off-site wells were installed. The initial 5 on-site wells have been abandoned and replaced by 2 wells located at the southern perimeter of the site. Over 2,400 cubic yards of hydrocarbon-impacted soil have been excavated and removed from within the property boundaries. The waste oil tank, tank backfill material, and impacted soil were excavated and disposed of in September 1990. Clay sewer pipes and contaminated soil from an abandoned utility trench near the former waste oil tank were removed from the site in early 1991. Site structures, 3 underground storage tanks, dispenser islands and associated piping, and stockpiled soils were removed from the site in April 1992. The excavated area was backfilled and compacted using clean imported material.

**WORK PERFORMED THIS QUARTER**

Groundwater monitoring and sampling was conducted. Replaced ORC. Submitted Follow-up to Groundwater Sampling and Monitoring Plan (PACIFIC, September 18, 1997) to the Alameda County Health Care Services Agency.

**CHARACTERIZATION STATUS**

All petroleum impacted soils underlying the site, with a possible exception of a very narrow band along the Grand Avenue sidewalk, have been removed by the extensive soil excavation activities. Groundwater at the site has been affected by gasoline, diesel, and hydrocarbons above the range of diesel. Since the removal of on-site contaminated soils, significant reductions in TPH-g and TPH-d concentrations in groundwater have been reported for samples taken from on- and off-site wells.

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No further investigation or remediation of the vadose-zone soils is planned. It is proposed that down gradient wells continue to be monitored to document the biodegradation of the remaining dissolved-phase hydrocarbons in the groundwater. Oxygen release compounds were installed in December 1996 in selected wells to enhance the natural in-situ biodegradation process.

**WORK TO BE PERFORMED NEXT QUARTER**

Implement reduced groundwater monitoring and sampling program, and monitor the ORC.

**WATER SUPPLY WELL**

In 1997, there were no known drinking water supply wells within a 1/2 mile radius of the site.

## CONTACTS

TRMI EH&S (Texaco)

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(510) 246-8776

Lead Regulatory Agency

Ms. Susan Hugo  
Alameda County Health Care Services Agency  
(510) 567-6780

Property Owner

Exxon Company, U.S.A.

**BLAINE**  
TECH SERVICES INC.



1680 ROGERS AVENUE  
SAN JOSE, CALIFORNIA 95112  
(408) 573-7771 FAX  
(408) 573-0555 PHONE

December 23, 1997

**Groundwater Monitoring and Sampling  
Fourth Quarter, 1997  
at the  
Former Texaco Service Station  
500 Grand Avenue  
Oakland, CA**

This letter presents the results of groundwater monitoring and sampling conducted by Blaine Tech Services, Inc. on November 5, 1997, at the site referenced above (see Plate 1, Site Vicinity Map). Based on groundwater level measurements, the areal hydraulic gradient was estimated to be southeast (see Plate 2, Groundwater Gradient Map). TPHg and benzene concentrations are shown on Plate 3. Tables 1 and 2 list historical groundwater monitoring data and analytical results, respectively. Well MW-8L was not sampled due to a bent casing.

The certified analytical report, chain-of-custody, field data sheets, bill of lading, and quarterly summary report are in the Appendix, along with Texaco Refining and Marketing Inc., Environment Health & Safety's Standard Operating Procedures.

A handwritten signature in cursive script, appearing to read 'Kent Brown'.

Kent Brown  
Project Coordinator  
Blaine Tech Services, Inc.

A handwritten signature in cursive script, appearing to read 'Steve E. Krcik'.

Steve E. Krcik  
Registered Geologist No. 4976  
RRM, Inc.



KEB:dg



**SOURCE:**

1993 THE THOMAS GUIDE  
ALAMEDA COUNTY, PAGE 9 (D4)



1" = 2200'



**TEXACO**

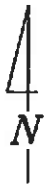
REFINING AND MARKETING, INC.  
TEXACO ENVIRONMENTAL SERVICES

PLATE 1

SITE VICINITY MAP  
FORMER TEXACO SERVICE STATION  
500 GRAND AVE. / EUCLID AVE.,  
OAKLAND, CALIFORNIA



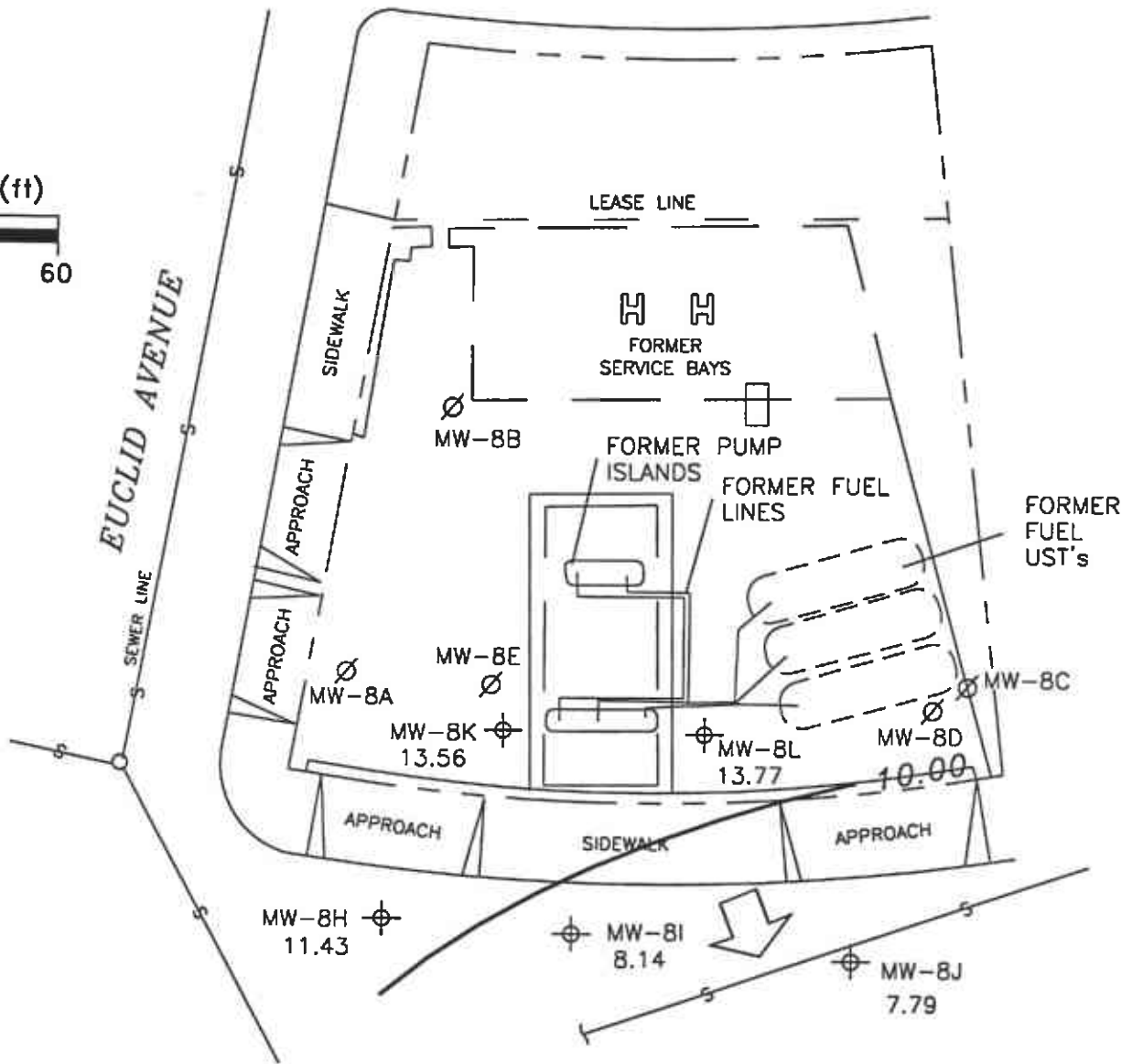
BARK STREET



SCALE (ft)



EUCLID AVENUE



EXPLANATION

⊕ MONITORING WELL

∅ ABANDONED MONITORING WELL

7.79 GROUNDWATER ELEVATION (FT, MSL)

— GROUNDWATER ELEVATION CONTOUR (FT, MSL)

↓ APPROXIMATE GROUNDWATER FLOW DIRECTION;

APPROXIMATE GRADIENT = 0.03

GRAND AVENUE

5.00



5.00

MW-8F  
⊕ 4.88

MW-8G  
⊕ 3.67

LAKE MERRIT  
PARK

Reference: GA-EA-0A.dwg  
Base map from Geoconsultants, Inc.

PREPARED BY

**RRM**  
engineering contracting firm

**Former Texaco Service Station**  
500 Grand Ave./Euclid Ave.  
Oakland, California

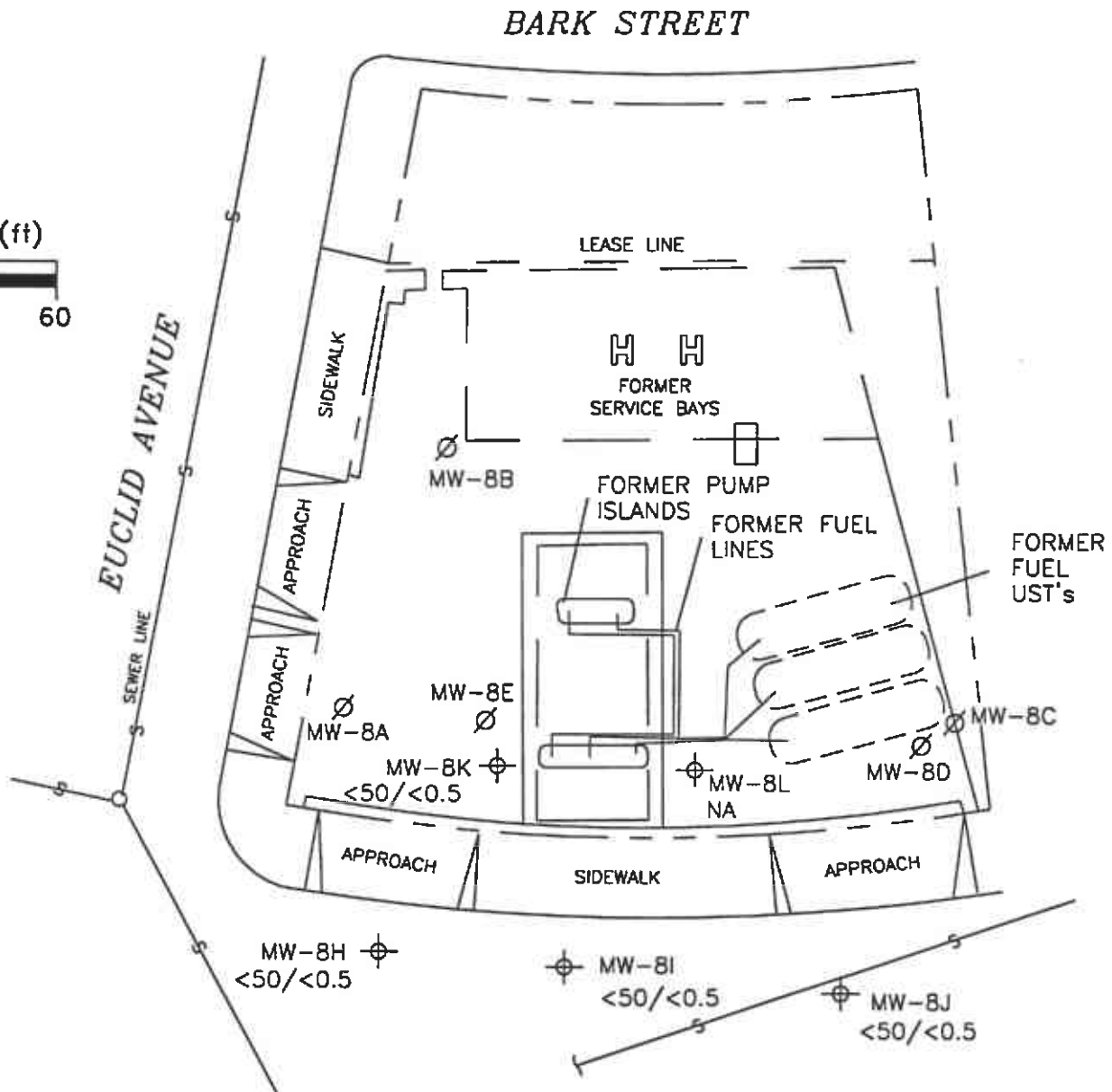
**GROUNDWATER ELEVATION CONTOUR MAP,**  
NOVEMBER 5, 1997

FIGURE:  
2

PROJECT:  
DAC04



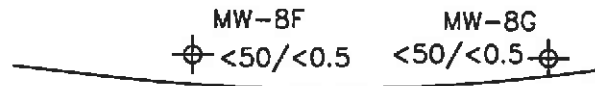
SCALE (ft)



**EXPLANATION**

- MONITORING WELL
- ABANDONED MONITORING WELL
- <50/<0.5 TPHG/BENZENE CONCENTRATION IN GROUNDWATER, IN PPB
- NA DATA NOT AVAILABLE

**GRAND AVENUE**



**LAKE MERRIT  
PARK**

Reference: GA-EA-04.dwg  
Basemap from Geoconsultants, Inc.

PREPARED BY

**RRM**  
engineering contracting firm

**Former Texaco Service Station**  
500 Grand Ave./Euclid Ave.  
Oakland, California

**TPHG/BENZENE CONCENTRATION MAP,  
NOVEMBER 5, 1997**

**FIGURE:**  
3  
**PROJECT:**  
DAC04

Table 1  
Groundwater Elevation Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8A	Well Properly Abandoned			
MW-8B	Well Properly Abandoned			
MW-8C	Well Properly Abandoned			
MW-8D	Well Properly Abandoned			
MW-8E	Well Properly Abandoned			
MW-8F	03/29/91	97.94		
	01/23/92		10.24	87.70
	02/28/92		9.93	88.01
	03/26/92		8.78	89.16
	04/30/92		9.36	88.58
	09/28/92		11.83	86.11
	11/19/92		11.22	86.72
	02/12/93		9.66	88.28
	05/06/93		8.83	89.11
	08/16/93	14.04 *	10.16	3.88
	10/12/93		10.60	3.44
	02/03/94		9.29	4.75
	05/31/94		9.34	4.70
	08/25/94		10.14	3.90
	11/02/94		10.42	3.62
	01/31/95		7.47	6.57
	05/18/95		8.00	6.04
	08/29/95		8.08	5.96
	11/02/95		8.70	5.34
	02/05/96		7.16	6.88
	04/30/96		7.25	6.79
	08/28/96		8.72	5.32
	12/05/96		8.16	5.88
	02/21/97		5.53	8.51
	05/02/97		7.85	6.19
	07/30/97		8.87	5.17
	11/05/97		9.16	4.88

Table 1  
Groundwater Elevation Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8G	04/23/91	97.24		
	01/23/92		11.30	85.94
	02/28/92		10.83	86.41
	03/26/92		9.20	88.04
	04/30/92		9.00	88.24
	09/28/92		13.32	83.92
	11/19/92		Well Inaccessible	
	02/12/93		Well Inaccessible	
	05/06/93		11.18	86.06
	08/16/93	13.32 *	9.51	3.81
	10/12/93		10.93	2.39
	02/03/94		9.69	3.63
	05/31/94		9.24	4.08
	08/25/94		9.74	3.58
	11/02/94		10.08	3.24
	01/31/95		5.75	7.57
	05/18/95		6.60	6.72
	08/29/95		8.14	5.18
	11/02/95		9.16	4.16
	02/05/96		7.18	6.14
	04/30/96		7.00	6.32
	08/28/96		8.94	4.38
	12/05/96		9.22	4.10
	02/21/97		6.11	7.21
	05/02/97		7.54	5.78
	07/30/97		Well Inaccessible	
	11/05/97		9.65	3.67

Table 1  
Groundwater Elevation Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8H	03/29/91	98.90		
	01/23/92		3.74	95.16
	02/28/92		4.44	94.46
	03/26/92		4.21	94.69
	04/30/92		3.46	95.44
	09/28/92		Well Inaccessible	
	11/19/92		3.75	95.15
	02/12/93		4.12	94.78
	05/06/93		3.85	95.05
	08/16/93	15.04 *	3.88	11.16
	10/12/93		3.80	11.24
	02/03/94		3.71	11.33
	05/31/94		3.80	11.24
	08/25/94		3.89	11.15
	11/02/94		3.64	11.40
	01/31/95		3.58	11.46
	05/18/95		3.53	11.51
	08/29/95		3.55	11.49
	11/02/95		3.49	11.55
	02/05/96		3.54	11.50
	04/30/96		3.50	11.54
	08/28/96		3.62	11.42
	12/05/96		3.38	11.66
	02/21/97		3.77	11.27
	05/02/97		3.64	11.40
	07/30/97		3.65	11.39
	11/05/97		3.61	11.43

Table 1  
Groundwater Elevation Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-81	03/29/91	98.27		
	01/23/92		6.33	91.94
	02/28/92		6.55	91.72
	03/26/92		6.45	91.82
	04/30/92		6.48	91.79
	09/28/92		Well Inaccessible	
	11/19/92		6.37	91.90
	02/12/93		6.44	91.83
	05/06/93		6.36	91.91
	08/16/93	14.40 *	6.35	8.05
	10/12/93		5.99	8.41
	02/03/94		5.84	8.56
	05/31/94		6.25	8.15
	08/25/94		6.31	8.09
	11/02/94		6.10	8.30
	01/31/95		5.83	8.57
	05/18/95		6.09	8.31
	08/29/95		6.09	8.31
	11/02/95		6.26	8.14
	02/05/96		5.97	8.43
	04/30/96		6.04	8.36
	08/28/96		6.20	8.20
	12/05/96		6.01	8.39
	02/21/97		6.15	8.25
	05/02/97		6.20	8.20
	07/30/97		6.12	8.28
	11/05/97		6.26	8.14

Table 1  
Groundwater Elevation Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8J	03/29/91	97.69		
	01/23/92		6.31	91.38
	02/28/92		6.28	91.41
	03/26/92		6.20	91.49
	04/30/92		6.48	91.21
	09/28/92		Well Inaccessible	
	11/19/92		6.55	91.14
	02/12/93		7.46	90.23
	05/06/93		6.21	91.48
	08/16/93	13.82 *	6.29	7.53
	10/12/93		5.87	7.95
	02/03/94		5.98	7.84
	05/31/94		6.10	7.72
	08/25/94		6.01	7.81
	11/02/94		5.90	7.92
	01/31/95		5.07	8.75
	05/18/95		5.33	8.49
	08/29/95		3.50	10.32
	11/02/95		5.94	7.88
	02/05/96		5.34	8.48
	04/30/96		5.96	7.86
	08/28/96		6.38	7.44
	12/05/96		5.94	7.88
	02/21/97		5.60	8.22
	05/02/97		6.22	7.60
	07/30/97		6.28	7.54
	11/05/97		6.03	7.79
MW-8K	08/16/93	15.18 *	2.08	13.10
	10/12/93		1.95	13.23
	02/03/94		1.48	13.70
	05/31/94		1.59	13.59
	08/25/94		2.00	13.18
	11/02/94		2.10	13.08
	01/31/95		1.35	13.83
	05/18/95		1.36	13.82
	08/29/95		1.55	13.63
	11/02/95		1.88	13.30
	02/05/96		1.46	13.72
	04/30/96		1.43	13.75
	08/28/96		1.75	13.43
	12/05/96		1.42	13.76
	02/21/97		1.49	13.69
	05/02/97		1.60	13.58
	07/30/97		1.66	13.52
	11/05/97		1.62	13.56

Table 1  
Groundwater Elevation Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Gauged	Top of Casing Elevation (feet, MSL)	Depth to Water (feet, TOC)	Elevation of Groundwater (feet, MSL)
MW-8L	08/16/93	14.44 *	2.47	11.97
	10/12/93		2.36	12.08
	02/03/94		2.82	11.62
	05/31/94		2.66	11.78
	08/25/94		2.34	12.10
	11/02/94		Well Obstructed	
	01/31/95		0.08	14.36
	05/18/95		0.42	14.02
	08/29/95		Well Inaccessible	
	11/02/95		Well Inaccessible	
	02/05/96		Well Inaccessible	
	04/30/96		Well Inaccessible	
	08/28/96		0.75	13.69
	12/05/96		Well Inaccessible	
	02/21/97		Well Inaccessible	
	05/02/97		0.60	13.84
	07/30/97		Well Inaccessible	
	11/05/97		0.67	13.77
* = New well elevation survey performed on August 16, 1993 based on mean sea level (MSL). Prior data based on arbitrary site data.				
TOC = Top of Casing				



Table 2  
Groundwater Analytical Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MTBE (ppb)	TPHd (ppm)	TPH as Other* (ppm)
MW-8A	Well properly abandoned								
MW-8B	Well properly abandoned								
MW-8C	Well properly abandoned								
MW-8D	Well properly abandoned								
MW-8E	Well properly abandoned								
MW-8F	01/23/92	<50	4.0	1.3	<0.5	1.9	NA	1.3	NA
	04/30/92	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<500
	09/28/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	11/19/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	02/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	NA
	05/06/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.1	<50
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.53
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	1.4
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	0.52	<5
	01/31/95	<50	<0.5	<0.5	<0.5	<0.5	NA	0.29	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	0.054	<5
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.083	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.051	<5
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.89
	04/30/96	<50	<0.5	<0.5	<0.5	<0.5	NA	0.062	<.005
	08/28/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	12/05/96	210	17	17	11	46	<30	0.11	<5
	02/21/97	<50	<0.5	<0.5	<0.5	<0.5	<30	0.085	<5
	05/02/97	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.81
	07/30/97	<50	<0.5	<0.5	<0.5	<0.5	<30	0.093	<0.5
	11/05/97	<50	<0.5	<0.5	<0.5	<0.5	<30	0.14	<0.5

Table 2  
Groundwater Analytical Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MTBE (ppb)	TPHd (ppm)	TPH as Other* (ppm)
MW-8G	01/24/92	<50	<0.5	<0.5	<0.5	<0.5	NA	0.98	NA
	04/30/92	<50	1.7	<0.5	<0.5	<0.5	NA	<0.05	<500
	09/28/92	Well Dry							
	11/19/92	Well Inaccessible							
	02/12/93	Well Inaccessible							
	04/29/93	<50	<0.5	<0.5	<0.5	<0.5	NA	0.06	<250
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<0.2
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.86
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	0.53	<5
	01/31/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.12	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.14	<5
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	0.51
	04/30/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<.005
	08/28/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	12/05/96	190	16	16	9.0	39	<30	0.057	<5
	02/21/97	<50	<0.5	<0.5	<0.5	<0.5	<30	0.054	<5
	05/02/97	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	07/30/97	Well Inaccessible							
	11/05/97	<50	<0.5	<0.5	<0.5	<0.5	<30	<0.05	<0.5

Table 2  
Groundwater Analytical Data  
500 Grand Avenue, Oakland, CA

Well	Date	TPHg	Benzene	Toluene	Ethyl- benzene	Xylenes	MTBE	TPHd	TPH as Other*
Number	Sampled	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppm)	(ppm)
MW-8H	01/23/92	110	7.2	1.2	4.7	3.2	NA	<0.06	NA
	04/30/92	190	11	1.5	5.6	3.6	NA	0.09	<500
	09/28/92	Well Inaccessible							
	11/19/92	130	6.8	<0.5	1.1	1.5	NA	NA	NA
	02/12/93	73	5.9	<0.5	0.8	<0.5	NA	NA	NA
	05/06/93	57	1.7	<0.5	<0.5	<0.5	NA	<0.1	<50
	08/16/93	<50	0.5	<0.5	0.5	1.4	NA	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	05/31/94	<50	0.79	<0.5	<0.5	<0.5	NA	<0.05	1.6
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	4.0
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	0.76	<5
	01/31/95	<50	<0.5	<0.5	<0.5	<0.5	NA	0.19	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	0.37	6.6
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	1.0	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	<0.05	5.8
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	0.19	2.3
	04/30/96	<50	<0.5	<0.5	<0.5	<0.5	NA	1.80	0.0087
	08/28/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	7.7
	12/05/96	100	6.2	7.3	5.0	22	<30	0.35	<5
	02/21/97	<50	<0.5	<0.5	<0.5	<0.5	<30	0.90	<13
	05/02/97	<50	<0.5	<0.5	<0.5	<0.5	NA	0.45	<5
	07/30/97	<50	<0.5	0.62	<0.5	<0.5	<30	0.18	13
	11/05/97	<50	<0.5	<0.5	<0.5	<0.5	<30	0.28	4.1

Table 2  
Groundwater Analytical Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MTBE (ppb)	TPHd (ppm)	TPH as Other* (ppm)
MW-81	01/23/92	820	420	7	27	20	NA	0.21	NA
	04/30/92	2,200	1,800	19	180	25	NA	0.43	<500
	09/28/92	Well Inaccessible							
	11/19/92	720	120	1.1	29	13	NA	NA	NA
	02/12/93	4,000	970	9.2	52	36	NA	NA	NA
	05/06/93	1,400	370	2.4	40	8.4	NA	<0.01	<50
	08/16/93	<50	3.1	<0.5	6	<0.5	NA	<0.05	<50
	10/12/93	<50	1.4	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	1,000	270	3.2	51	14	NA	<0.05	<50
	05/31/94	1,400	330	4.6	52	16	NA	<0.05	0.33
	08/25/94	540	14	0.58	30	4.3	NA	<0.05	0.73
	11/02/94	310	5.7	0.74	20	<0.5	NA	0.37	<5
	01/31/95	840	290	4.5	45	1.6	NA	0.91	<5
	05/18/95	1,700	390	7.8	80	10	NA	1.1	<5
	08/29/95	300	81	<0.5	13	0.63	<10	0.56	<5
	11/02/95	81	<0.5	4.1	1.5	<0.5	<10	0.16	<5
	02/05/96	300	75	0.75	8.4	1.2	NA	0.14	<0.5
	04/30/96	350	150	0.77	3.2	1.3	NA	<0.05	<.005
	08/28/96	1100	300	2.9	3.2	2.1	NA	0.38	<5
	12/05/96	340	23	8.7	11	26	<30	0.053	<5
	02/21/97	<50	<0.5	<0.5	<0.5	<0.5	<30	0.33	<5
	05/02/97	110	39	<0.5	0.92	<0.5	NA	<0.05	<5
	07/30/97	<50	4.2	<0.5	<0.5	<0.5	<30	0.17	1.2
	11/05/97	<50	<0.5	<0.5	<0.5	<0.5	<30	<0.05	<0.5

Table 2  
Groundwater Analytical Data  
500 Grand Avenue, Oakland, CA

Well	Date	TPHg	Benzene	Toluene	Ethyl- benzene	Xylenes	MTBE	TPHd	TPH as Other*
Number	Sampled	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppm)	(ppm)
MW-8J	01/23/92	<50	1	<0.5	<0.5	<0.5	NA	<0.05	NA
	04/30/92	<50	2	<0.5	<0.5	<0.5	NA	<0.05	<500
	09/28/92	Well Inaccessible							
	11/19/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	02/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	05/06/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.01	<50
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	10/12/93	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	05/31/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<0.2
	08/25/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	1.0
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	01/31/95	<50	3.7	<0.5	<0.5	<0.5	NA	<0.05	<5
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.25	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.25	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.52	<5
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	0.065	1.0
	04/30/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<.005
	08/28/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	12/05/96	160	13	14	8.9	38	<30	<0.05	<5
	02/21/97	<50	<0.5	<0.5	<0.5	<0.5	<30	<0.05	<5
	05/02/97	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	07/30/97	<50	<0.5	<0.5	<0.5	<0.5	<30	<0.05	<0.5
	11/05/97	<50	<0.5	<0.5	<0.5	<0.5	<30	<0.05	<0.5

Table 2  
Groundwater Analytical Data  
500 Grand Avenue, Oakland, CA

Well	Date	TPHg	Benzene	Toluene	Ethyl- benzene	Xylenes	MTBE	TPHd	TPH as Other*
Number	Sampled	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppm)	(ppm)
MW-8K	05/21/93	54	12	<0.5	<0.5	<0.5	NA	<0.05	<50
	08/16/93	<50	<0.5	<0.5	1.0	<0.5	NA	<0.05	<50
	10/24/93	<50	4.2	<0.5	<0.5	<0.5	NA	<0.05	<50
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<50
	05/31/94	<50	1.0	0.57	<0.5	<0.5	NA	<0.05	<0.2
	08/25/94	<50	0.78	<0.5	<0.5	<0.5	NA	<0.05	0.98
	11/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	01/31/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	05/18/95	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	08/29/95	<50	<0.5	<0.5	<0.5	<0.5	<10	0.16	<5
	11/02/95	<50	<0.5	<0.5	<0.5	<0.5	<10	<0.05	<5
	02/05/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<0.5
	04/30/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<.005
	08/28/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	12/05/96	<50	<0.5	<0.5	<0.5	<0.5	<30	<0.05	<5
	02/21/97	<50	<0.5	<0.5	<0.5	<0.5	<30	<0.05	<5
	05/02/97	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.05	<5
	07/30/97	<50	<0.5	<0.5	<0.5	<0.5	<30	<0.05	<0.5
	11/05/97	<50	<0.5	<0.5	<0.5	<0.5	<30	0.30	<0.5

Table 2  
Groundwater Analytical Data  
500 Grand Avenue, Oakland, CA

Well Number	Date Sampled	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MTBE (ppb)	TPHd (ppm)	TPH as Other* (ppm)
MW-8L	05/21/93	76	1.1	<0.5	<0.5	6	NA	<0.05	<50
	08/16/93	<50	<0.5	<0.5	0.7	1.1	NA	<0.05	<50
	10/12/93	110	13	<0.5	6	<0.5	NA	<0.05	<50
	02/03/94	590	61	2.4	<0.5	110	NA	<0.05	<50
	05/31/94	410	77	<0.5	20	1.1	NA	<0.05	<0.2
	08/25/94	260	16	<0.5	2.5	<0.5	NA	<0.05	1.1
	11/02/94	Well Inaccessible							
	01/31/95	Well Inaccessible							
	05/18/95	Well Inaccessible							
	08/29/95	Well Inaccessible							
	11/02/95	Well Inaccessible							
	02/05/96	Well Inaccessible							
	04/30/96	Well Inaccessible							
	08/28/96	Well Inaccessible							
	12/05/96	Well Inaccessible							
	02/21/97	Well Inaccessible							
	05/02/97	Well Inaccessible							
	07/30/97	Well Inaccessible							
	11/05/97	Not Sampled							
TPHg = Total Petroleum Hydrocarbons as gasoline.									
TPHd = Total Petroleum Hydrocarbons as diesel.									
MTBE = Methyl-tert-butylether									
ppb = parts per billion									
ppm = parts per million									
NA = Not Analyzed									
< = Less than the detection limit for the specified method of analysis.									
* = Includes "heavy" petroleum hydrocarbons such as waste oil, mineral spirits, jet fuel, or fuel oil.									
** = Non-diesel mix >C16. The certified analytical report for sample MW-8G was revised on 10/21/93.									

# ANALYTICAL REPORT



*Our Quality Control Is Your Quality Assurance*

LOG NO: G97-11-123

Received: 06 NOV 97

Mailed: NOV 20 1997

Mr. Kent Brown  
Blaine Tech Services  
1680 Rogers Avenue  
San Jose, California 95112

Purchase Order: 94-1446346+4370

Requisition: 624880235  
Project: FKEP9037L

## REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES					DATE SAMPLED
11-123-1	MW-8F					05 NOV 97
11-123-2	MW-8G					05 NOV 97
11-123-3	MW-8H					05 NOV 97
11-123-4	MW-8I					05 NOV 97
11-123-5	MW-8J					05 NOV 97
PARAMETER	11-123-1	11-123-2	11-123-3	11-123-4	11-123-5	
TRPH (418.1), mg/L	<0.5	<0.5	4.1	<0.5	<0.5	
TPH (8015M)						
Date Analyzed	11/11/97	11/11/97	11/11/97	11/11/97	11/11/97	
Date Extracted	11/10/97	11/10/97	11/10/97	11/10/97	11/10/97	
Dilution Factor, Times	1	1	1	1	1	
TPH (Diesel Range), mg/L	0.14	<0.05	0.28	<0.05	<0.05	
Carbon Range, .	C10-C25	C10-C25	C10-C25	C10-C25	C10-C25	
Surrogates **						
Naphthalene Reported, mg/L	0.0376	0.0347	0.0330	0.0317	0.0332	
Naphthalene Theoretical, mg/L	0.0500	0.0500	0.0500	0.0500	0.0500	
o-Terphenyl Reported, mg/L	0.0447	0.0420	0.0401	0.0378	0.0400	
o-Terphenyl Theoretical, mg/L	0.0500	0.0500	0.0500	0.0500	0.0500	



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Page 2

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES					DATE SAMPLED
11-123-1	MW-8F					05 NOV 97
11-123-2	MW-8G					05 NOV 97
11-123-3	MW-8H					05 NOV 97
11-123-4	MW-8I					05 NOV 97
11-123-5	MW-8J					05 NOV 97
PARAMETER	11-123-1	11-123-2	11-123-3	11-123-4	11-123-5	
GRO (8015M.TX)						
Date Analyzed	11/15/97	11/15/97	11/15/97	11/15/97	11/15/97	
Dilution Factor, Times	1	1	1	1	1	
Benzene, ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Toluene, ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene, ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Methyl-tert-butylether, ug/L	<30	<30	<30	<30	<30	
Total Xylene Isomers, ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	
Carbon Range, .	C6-C12	C6-C12	C6-C12	C6-C12	C6-C12	
TPH (Gasoline Range), ug/L	<50	<50	<50	<50	<50	
Other GRO (8015M.TX)	---	---	---	---	---	
Surrogates **						
a,a,a-Trifluorotoluene Rep., ug/L	47.1	46.6	46.0	49.3	47.7	
a,a,a-Trifluorotoluene Th., ug/L	50.0	50.0	50.0	50.0	50.0	

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REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
11-123-6	MW-8K	05 NOV 97
PARAMETER	11-123-6	
TRPH (418.1), mg/L	<0.5	
TPH (8015M)		
Date Analyzed	11/11/97	
Date Extracted	11/10/97	
Dilution Factor, Times	1	
TPH (Diesel Range), mg/L	0.30	
Carbon Range, .	C10-C25	
Surrogates **		
Naphthalene Reported, mg/L	0.0342	
Naphthalene Theoretical, mg/L	0.0500	
o-Terphenyl Reported, mg/L	0.0416	
o-Terphenyl Theoretical, mg/L	0.0500	

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REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
11-123-6	MW-8K	05 NOV 97
PARAMETER	11-123-6	
GRO (8015M.TX)		
Date Analyzed	11/15/97	
Dilution Factor, Times	1	
Benzene, ug/L	<0.5	
Toluene, ug/L	<0.5	
Ethylbenzene, ug/L	<0.5	
Methyl-tert-butylether, ug/L	<30	
Total Xylene Isomers, ug/L	<0.5	
Carbon Range, .	C12	
TPH (Gasoline Range), ug/L	<50	
Other GRO (8015M.TX)	---	
Surrogates **		
a,a,a-Trifluorotoluene Rep., ug/L	47.0	
a,a,a-Trifluorotoluene Th., ug/L	50.0	

LOG NO: G97-11-123

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REPORT OF ANALYTICAL RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
11-123-7	EB	05 NOV 97
PARAMETER	11-123-7	
TRPH (418.1), mg/L	<0.5	
TPH (8015M)		
Date Analyzed	11/11/97	
Date Extracted	11/10/97	
Dilution Factor, Times	1	
TPH (Diesel Range), mg/L	<0.05	
Carbon Range, .	C10-C25	
Surrogates **		
Naphthalene Reported, mg/L	0.0329	
Naphthalene Theoretical, mg/L	0.0500	
o-Terphenyl Reported, mg/L	0.0437	
o-Terphenyl Theoretical, mg/L	0.0500	

LOG NO: G97-11-123

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Requisition: 624880235  
Project: FKEP9037L

REPORT OF ANALYTICAL RESULTS

Page 6

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
11-123-7	EB	05 NOV 97
PARAMETER	11-123-7	
GRO (8015M.TX)		
Date Analyzed	11/17/97	
Dilution Factor, Times	1	
Benzene, ug/L	<0.5	
Toluene, ug/L	<0.5	
Ethylbenzene, ug/L	<0.5	
Methyl-tert-butylether, ug/L	<30	
Total Xylene Isomers, ug/L	<0.5	
Carbon Range, .	-C12	
TPH (Gasoline Range), ug/L	<50	
Other GRO (8015M.TX)	---	
Surrogates **		
a,a,a-Trifluorotoluene Rep., ug/L	46.7	
a,a,a-Trifluorotoluene Th., ug/L	50.0	

LOG NO: G97-11-123

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Purchase Order: 94-1446346+4370

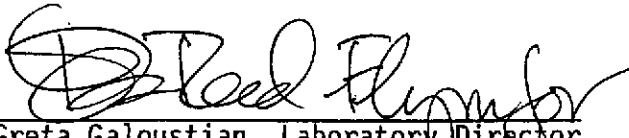
Requisition: 624880235  
Project: FKEP9037L

REPORT OF ANALYTICAL RESULTS

Page 7

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Deborah Pryor  
500 Grand Ave., Oakland  
Alameda County

  
Greta Galoustian, Laboratory Director

The analytical results within this report relate only to the specific compounds and samples investigated and may not necessarily reflect other apparently similar material from the same or a similar location.

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SAMPLES...	SAMPLE DESCRIPTION..	DETERM.....	DATE.....	METHOD.....	EQUIP.	BATCH..	ID.NO
			ANALYZED				
9711123*1	MW-8F	IR.PETROHC	11.11.97	418.1	533-17	97491	8106
		DIESEL.3520.TES	11.11.97	8015M	536-01	97248	8866
		GAS.MTBE.TESNC	11.15.97	8015M.TX	536-23	975163	7424
9711123*2	MW-8G	IR.PETROHC	11.11.97	418.1	533-17	97491	8106
		DIESEL.3520.TES	11.11.97	8015M	536-01	97248	8866
		GAS.MTBE.TESNC	11.15.97	8015M.TX	536-23	975163	7424
9711123*3	MW-8H	IR.PETROHC	11.11.97	418.1	533-17	97491	8106
		DIESEL.3520.TES	11.11.97	8015M	536-01	97248	8866
		GAS.MTBE.TESNC	11.15.97	8015M.TX	536-23	975163	7424
9711123*4	MW-8I	IR.PETROHC	11.11.97	418.1	533-17	97491	8106
		DIESEL.3520.TES	11.11.97	8015M	536-01	97248	8866
		GAS.MTBE.TESNC	11.15.97	8015M.TX	536-23	975163	7424
9711123*5	MW-8J	IR.PETROHC	11.11.97	418.1	533-17	97491	8106
		DIESEL.3520.TES	11.11.97	8015M	536-01	97248	8866
		GAS.MTBE.TESNC	11.15.97	8015M.TX	536-23	975163	7424
9711123*6	MW-8K	IR.PETROHC	11.11.97	418.1	533-17	97491	8106
		DIESEL.3520.TES	11.11.97	8015M	536-01	97248	8866
		GAS.MTBE.TESNC	11.15.97	8015M.TX	536-23	975163	7424
9711123*7	EB	IR.PETROHC	11.11.97	418.1	533-17	97491	8106
		DIESEL.3520.TES	11.11.97	8015M	536-01	97248	8866
		GAS.MTBE.TESNC	11.17.97	8015M.TX	536-23	975165	7424

\*\*\*

Notes: Equipment = VOC Analytical identification number for a particular piece of analytical equipment.

ID.NO = VOC Analytical employee identification number of analyst.

AQUEOUS SAMPLES

	METHOD BLANK			LAB CONTROL								MATRIX QC					
	UNITS	RESULT	RDL FLG	LCS %REC FLG	LCS %REC FLG	LCL	UCL	RPD	RPD	MS %REC FLG	MSD %REC FLG	LCL	UCL	RPD	RPD		
Batch: IR*97491 Method: 418.1 - Petroleum Hydrocarbons, Total, Spectrophotometric, Infrared																	
TRPH	mg/L	0.03	0.5 -	132 -	129 -	43	168	3	-	99	-	99	-	34	129	0 30 -	
Batch: GAS*975163 Method: 8015M.TX - Modified 8015																	
Benzene	ug/L	0	0.5 -	86 -	- -	76	155	-	-	74	-	71	-	70	153	5 25 -	
Toluene	ug/L	0	0.5 -	89 -	- -	72	121	-	-	69	-	70	-	69	119	3 25 -	
Ethylbenzene	ug/L	0	0.5 -	88 -	- -	72	115	-	-	73	-	75	-	68	116	3 25 -	
Methyl-tert-butylether	ug/L	0	30 -	92 -	- -	62	159	-	-	127	-	133	-	80	176	4 25 -	
Total Xylene Isomers	ug/L	0	0.5 -	93 -	- -	68	115	-	-	67	-	68	-	61	118	2 25 -	
TPH (Gasoline Range)	ug/L	0	50 -	95 -	- -	85	120	-	-	88	-	89	-	78	124	2 25 -	
[a,a,a-Trifluorotoluene]	Percent	98	- -	92 -	- -	85	118	-	-	101	-	98	-	85	118	- - -	
Batch: GAS*975165 Method: 8015M.TX - Modified 8015																	
Benzene	ug/L	0	0.5 -	87 -	- -	76	155	-	-	82	-	75	-	70	153	9 25 -	
Toluene	ug/L	0	0.5 -	91 -	- -	72	121	-	-	77	-	70	-	69	119	10 25 -	
Ethylbenzene	ug/L	0	0.5 -	91 -	- -	72	115	-	-	80	-	78	-	68	116	3 25 -	
Methyl-tert-butylether	ug/L	0	30 -	78 -	- -	62	159	-	-	-	-	-	-	-	-	- - -	
Total Xylene Isomers	ug/L	0.16	0.5 -	97 -	- -	68	115	-	-	73	-	70	-	61	118	4 25 -	
TPH (Gasoline Range)	ug/L	0	50 -	99 -	- -	85	120	-	-	96	-	98	-	78	124	2 25 -	
[a,a,a-Trifluorotoluene]	Percent	100	- -	97 -	- -	85	118	-	-	115	-	100	-	85	118	- - -	
Batch: DIESEL*97248 Method: 8015M - Modified 8015																	
TPH (Diesel Range)	mg/L	0	0.5 -	89 -	96 -	53	155	9	-	108	-	105	-	53	128	3 30 -	
[Naphthalene]	Percent	69	- -	55 -	58 -	55	127	-	-	77	-	77	-	55	127	- - -	
[o-Terphenyl]	Percent	80	- -	114 -	115 -	50	163	-	-	129	-	123	-	50	163	- - -	



METHOD	ANALYTE	BATCH	ANALYZED	REPORTED	TRUE	%REC	FLAG
9711123*1							
8015M	Naphthalene	97248	11/11/97	0.0376	0.0500	75	
	o-Terphenyl	97248	11/11/97	0.0447	0.0500	89	
8015M.TXa,a,a-	Trifluorotoluene	Re975163	11/15/97	47.1	50.0	94	
9711123*2							
8015M	Naphthalene	97248	11/11/97	0.0347	0.0500	69	
	o-Terphenyl	97248	11/11/97	0.0420	0.0500	84	
8015M.TXa,a,a-	Trifluorotoluene	Re975163	11/15/97	46.6	50.0	93	
9711123*3							
8015M	Naphthalene	97248	11/11/97	0.0330	0.0500	66	
	o-Terphenyl	97248	11/11/97	0.0401	0.0500	80	
8015M.TXa,a,a-	Trifluorotoluene	Re975163	11/15/97	46.0	50.0	92	
9711123*4							
8015M	Naphthalene	97248	11/11/97	0.0317	0.0500	63	
	o-Terphenyl	97248	11/11/97	0.0378	0.0500	76	
8015M.TXa,a,a-	Trifluorotoluene	Re975163	11/15/97	49.3	50.0	99	
9711123*5							
8015M	Naphthalene	97248	11/11/97	0.0332	0.0500	66	
	o-Terphenyl	97248	11/11/97	0.0400	0.0500	80	
8015M.TXa,a,a-	Trifluorotoluene	Re975163	11/15/97	47.7	50.0	95	
9711123*6							
8015M	Naphthalene	97248	11/11/97	0.0342	0.0500	68	
	o-Terphenyl	97248	11/11/97	0.0416	0.0500	83	
8015M.TXa,a,a-	Trifluorotoluene	Re975163	11/15/97	47.0	50.0	94	
9711123*7							
8015M	Naphthalene	97248	11/11/97	0.0329	0.0500	66	
	o-Terphenyl	97248	11/11/97	0.0437	0.0500	87	
8015M.TXa,a,a-	Trifluorotoluene	Re975165	11/17/97	46.7	50.0	93	

697-11-123

Chain-of-Custody

TRMI EH&S  
 100 Cutting Boulevard  
 Richmond, California 94804  
 Phone: (510) 230-3541  
 FAX: (510) 237-7021  
 Forward Results to Blaine Tech, ATTN: Kent Brown  
 Texaco Project Coordinator Deborah Pryor

Site Name: Texaco Loc. #624880235  
 Site Address: 500 Grand Ave. Oakland, CA  
 Contractor Project Number: 971105-D1  
 Contractor Name: Blaine Tech Services, Inc.  
 Address: 1680 Rogers Ave., San Jose, CA 95112  
 Project Contact: Kent Brown  
 Phone/FAX: (408)573-0555 / (408)573-7771

Laboratory: B C Analytical  
 Turn Around Time: normal (10 day)  
 Samplers (PRINT NAME): Van Venor  
 Sampler Signature: [Signature]  
 Date Samples Collected: 11/5/97

ANALYSIS									
TPH gas/STEX	TPH Diesel	OLG/TPH (-18.1)	TPH Ex. (CB-C35+)	VOCs 8240/524	P. Halocarbons 8010/60	P. Aromatics 8020/602	Organic Lead	Other	
									<i>oil &amp; grease</i>
X	X	X							
X	X	X							
X	X	X							
X	X	X							
X	X	X							
X	X	X							

X 3 Vials HCL  
 ZL Non-Petroleum  
 ZL HCL

Sample Number	LAB Sample Number	Date/Time Collected	No. of Containers	Type of Containers	Sample Labels	Preservative
MW-8F		11/5 7:40	7	*	W	*
MW-8G		9:00				
MW-8H		11:40				
MW-8I		11:03				
MW-8J		10:25				
MW-8K		8:07				
EB		8:20				

Comments

Relinquished by: [Signature] Date: 11/6/97 Time: 10:50  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Method of Shipment: \_\_\_\_\_

Received by: [Signature] Date: 11/6/97 Time: 10:50  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Lab Comments: \_\_\_\_\_

## Well Gauging Data

Project Name: 624880235  
 Project Number: 971105-81

Date: 11/5/97  
 Recorded By: PK

Well ID	TOC Elev.	DTB (ft. TOC)	Well Dia. (in.)	DTP (ft.)	DTW (ft.)	PT (ft.)	Comments
MW-8F		14.92	4		9.16		
MW-8G		14.53	4		9.65		
MW-8H		14.89	4		3.61		
MW-8I		14.52	4		6.26		
MW-8J		14.87	4		6.03		
MW-8K		16.45	2		1.62		
MW-8L		-	2		0.67		

TOC = Top of casing  
 DTB = Depth to bottom in feet below TOC  
 DTP = Depth to product in feet below TOC  
 DTW = Depth to water in feet below TOC  
 PT = Product thickness in feet

# TEXACO WELL MONITORING DATA SHEET

Project #: 971105-D1	Texaco ID#: 624880235
Sampler: DV	Date: 11/5/97
Well I.D.: MW-8F	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 14.92	Depth to Water: 9.16
Depth to Free Product:	Thickness of Free Product:
All Measurements are referenced to TOC. Meter used is Myron LpDS pH/EC Meter. All temperatures taken in degrees Fahrenheit.	

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.17	5"	1.02
3"	0.38	6"	1.50
4"	0.66	8"	2.60
4.5"	0.83	Other	radius <sup>2</sup> * 0.164

Purge Method: S.S. Bailer      Sampling Method: S.S. Bailer   
 Teflon Bailer      Teflon Bailer  
 Middleburg      Extraction Port  
 Electric Submersible       Other: \_\_\_\_\_  
 Extraction Pump

Other: \_\_\_\_\_

<u>3.8</u>	x	<u>3</u>	=	<u>11.4</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Color/Odor
9:30	64.4	7.0	3000	68	4	
9:31	64.4	6.8	2800	42	8	
9:32	64.4	6.8	2600	32	12	

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 12
Sampling Time: 9:40	Sampling Date: 11/5
Sample I.D.: MW-8F	Laboratory: BC Analytical
Analyzed for: Tph-G <input checked="" type="checkbox"/> BTEX <input checked="" type="checkbox"/> Tph-D <input checked="" type="checkbox"/>	Other: oil & grease
Equipment Blank I.D.:	Analyzed for same as primary sample

# TEXACO WELL MONITORING DATA SHEET

Project #: 971105-D1	Texaco ID#: 624880235
Sampler: DV	Date: 11/5/97
Well I.D.: MW-86	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 14.53	Depth to Water: 9.65
Depth to Free Product:	Thickness of Free Product:
All Measurements are referenced to TOC. Meter used is Myron LpDS pH/EC Meter. All temperatures taken in degrees Fahrenheit.	

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.17	5"	1.02
3"	0.38	6"	1.50
4"	0.66	8"	2.60
4.5"	0.83	Other	radius <sup>2</sup> * 0.164

Purge Method: S.S. Bailer      Sampling Method: S.S. Bailer   
 Teflon Bailer      Teflon Bailer  
 Middleburg      Extraction Port  
 Electric Submersible       Other: \_\_\_\_\_  
 Extraction Pump

Other: \_\_\_\_\_

3.2	x	3	=	9.6	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Color/Odor
8:55	64.4	7.2	1000	7200	3.5	
8:56	63.8	6.9	2000	7200	7	
8:57	63.6	6.8	2600	7200	10	

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 10
Sampling Time: 9:00	Sampling Date: 11/5
Sample I.D.: MW-86	Laboratory: BC Analytical
Analyzed for: Tph-C <input checked="" type="checkbox"/> BTEX <input checked="" type="checkbox"/> Tph-D <input checked="" type="checkbox"/>	Other: oil & grease
Equipment Blank I.D.:	Analyzed for same as primary sample

# TEXACO WELL MONITORING DATA SHEET

Project #: 971105-171	Texaco ID#: 624880235
Sampler: DV	Date: 11/5/97
Well I.D.: MW-8H	Well Diameter: 2 3 (4) 6 8
Total Well Depth: 14.89	Depth to Water: 3.61
Depth to Free Product:	Thickness of Free Product:
All Measurements are referenced to TOC. Meter used is Myron LpDS pH/EC Meter. All temperatures taken in degrees Fahrenheit.	

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.17	5"	1.02
3"	0.38	6"	1.50
4"	0.66	8"	2.60
4.5"	0.83	Other	radius <sup>2</sup> * 0.164

Purge Method: S.S. Bailer Teflon Bailer Middleburg Electric Submersible <input checked="" type="checkbox"/> Extraction Pump Other: _____	Sampling Method: S.S. Bailer <input checked="" type="checkbox"/> Teflon Bailer Extraction Port Other: _____
---	--

7.4	x	3	=	22.2	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Color/Odor
11:25	74.0	7.2	540	80	7.5	
11:27	73.8	7.2	500	79	15	
11:29	73.8	7.2	480	73	23	

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 23
Sampling Time: 11:40	Sampling Date: 11/5
Sample I.D.: MW-8H	Laboratory: BC Analytical
Analyzed for: <input checked="" type="checkbox"/> TPH-G <input checked="" type="checkbox"/> BTEX <input checked="" type="checkbox"/> TPH-L	Other: oil & grease
Equipment Blank I.D.:	Analyzed for same as primary sample

# TEXACO WELL MONITORING DATA SHEET

Project #: 971105-D1	Texaco ID#: 624880235
Sampler: DV	Date: 11/5/07
Well I.D.: MW-8I	Well Diameter: 2 3 (4) 6 8
Total Well Depth: 14.52	Depth to Water: 6.20
Depth to Free Product:	Thickness of Free Product:
All Measurements are referenced to TOC. Meter used is Myron LpDS pH/EC Meter. All temperatures taken in degrees Fahrenheit.	

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.17	5"	1.02
3"	0.38	6"	1.50
4"	0.66	8"	2.60
4.5"	0.83	Other	radius <sup>2</sup> * 0.164

Purge Method: S.S. Bailer Teflon Bailer Middleburg Electric Submersible <input checked="" type="checkbox"/> Extraction Pump Other: _____	Sampling Method: S.S. Bailer <input checked="" type="checkbox"/> Teflon Bailer Extraction Port Other: _____
---	--

<u>5.5</u>	x	<u>3</u>	=	<u>16.5</u> Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Color/Odor
10:50	72.4	7.0	840	85	6	
10:52	72.4	6.9	2000	60	11	
10:54	73.2	7.0	1000	27	17	

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 17
Sampling Time: 11:03	Sampling Date: 11/5
Sample I.D.: MW-8I	Laboratory: BC Analytical
Analyzed for: Tph-G <input checked="" type="checkbox"/> BTEX <input checked="" type="checkbox"/> Tph-D <input checked="" type="checkbox"/>	Other: oil & grease
Equipment Blank I.D.:	Analyzed for same as primary sample

# TEXACO WELL MONITORING DATA SHEET

Project #: 971105-D1	Texaco ID#: 624880235
Sampler: DV	Date: 11/5/97
Well I.D.: MW-8J	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 14.87	Depth to Water: 6.03
Depth to Free Product:	Thickness of Free Product:

All Measurements are referenced to TOC. Meter used is Myron LpDS pH/EC Meter. All temperatures taken in degrees Fahrenheit.

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.17	5"	1.02
3"	0.38	6"	1.50
4"	0.66	8"	2.60
4.5"	0.83	Other	radius <sup>2</sup> * 0.164

Purge Method: S.S. Bailer Teflon Bailer Middleburg Electric Submersible <input checked="" type="checkbox"/> Extraction Pump Other: _____	Sampling Method: S.S. Bailer <input checked="" type="checkbox"/> Teflon Bailer Extraction Port Other: _____
---	--

5.8	x	3	=	17.4	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Color/Odor
10:15	69.4	7.0	1800	100	6	
10:17	70.6	7.0	1200	80	12	
10:18	72.0	6.9	1000	74	18	

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 18
Sampling Time: 10:25	Sampling Date: 11/5
Sample I.D.: MW-8J	Laboratory: BC Analytical
Analyzed for: Tph-G <input checked="" type="checkbox"/> BTEX <input checked="" type="checkbox"/> Tph-D <input checked="" type="checkbox"/>	Other: oil & grease
Equipment Blank I.D.:	Analyzed for same as primary sample



# TEXACO WELL MONITORING DATA SHEET

Project #: 971105-D1	Texaco ID#: 624880235
Sampler: DV	Date: 11/5/47
Well I.D.: MW-8K	Well Diameter: (2) 3 4 6 8
Total Well Depth: 16.45	Depth to Water: 1.62
Depth to Free Product:	Thickness of Free Product:
All Measurements are referenced to TOC. Meter used is Myron LpDS pH/EC Meter. All temperatures taken in degrees Fahrenheit.	

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.17	5"	1.02
3"	0.38	6"	1.50
4"	0.66	8"	2.60
4.5"	0.83	Other	radius <sup>2</sup> * 0.164

Purge Method: S.S. Bailer  Teflon Bailer Middleburg Electric Submersible Extraction Pump Other: \_\_\_\_\_

Sampling Method: S.S. Bailer  Teflon Bailer Extraction Port Other: \_\_\_\_\_

<u>2.5</u>	x	<u>3</u>	=	<u>7.5</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Color/Odor
7:45	72.2	6.9	1400	7200	7.5	
7:55	71.4	7.0	1100	7200	5	
8:05	71.8	7.1	1000	7200	7.5	

Did well dewater? Yes <input checked="" type="checkbox"/> No	Gallons actually evacuated: 7.5
Sampling Time: 8:07	Sampling Date: 11/5
Sample I.D.: MW-8K	Laboratory: BC Analytical
Analyzed for: (Tph-G) BTEX (Tph-D)	Other: oil & grease
Equipment Blank I.D. EBe8:20	Analyzed for same as primary sample

# TEXACO WELL MONITORING DATA SHEET

Project #: 971105-D1	Texaco ID#: 624880235
Sampler: DV	Date: 11/5/97
Well I.D.: MW-8L	Well Diameter: (2) 3 4 6 8
Total Well Depth: —	Depth to Water: 0.67
Depth to Free Product:	Thickness of Free Product:

All Measurements are referenced to TOC. Meter used is Myron LpDS pH/EC Meter. All temperatures taken in degrees Fahrenheit.

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.17	5"	1.02
3"	0.38	6"	1.50
4"	0.66	8"	2.60
4.5"	0.83	Other	radius <sup>2</sup> * 0.164

Purge Method: S.S. Bailer  
 Teflon Bailer  
 Middleburg  
 Electric Submersible  
 Extraction Pump  
 Other: \_\_\_\_\_

Sampling Method: S.S. Bailer  
 Teflon Bailer  
 Extraction Port  
 Other: \_\_\_\_\_

	X		=		Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Color/Odor
			Well Not Sampled			
			Bent or Broken Casing at 2.76'			

Did well dewater? Yes    No	Gallons actually evacuated: _____
Sampling Time: _____	Sampling Date: _____
Sample I.D.: _____	Laboratory: BC Analytical
Analyzed for: Tph-G    BTEX    Tph-D    Other: _____	
Equipment Blank I.D.: _____	Analyzed for same as primary sample

# SOURCE RECORD BILL OF LADING

FOR NON-HAZARDOUS PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT TEXACO FACILITIES IN THE STATE OF CALIFORNIA. THE NON-HAZARDOUS PURGEWATER WHICH HAS BEEN RECOVERED FROM GROUNDWATER WELLS IS COLLECTED BY THE CONTRACTOR, MADE UP INTO LOADS OF APPROPRIATE SIZE AND HAULED TO THE DESTINATION DESIGNATED BY TEXACO ENVIRONMENTAL SERVICES (TES).

Contractor: Blaine Tech Services, Inc.  
 Address: 1680 Rogers Avenue  
 City, State, ZIP: San Jose, CA 95112  
 Phone: (408) 573-0555

is authorized by Texaco Environmental Services to recover, collect, apportion into loads, and haul the NON-HAZARDOUS WELL PURGEWATER that is drawn from wells at the Texaco facility listed below and to deliver that purgewater to an appropriate destination designated by TEXACO ENVIRONMENTAL SERVICES in either Redwood City, California or in Richmond, California. Transport routing of the Non-Hazardous Well Purgewater may be directed from one Texaco facility to the designated desitnation point; from one Texaco facility to the designated destination point via another Texaco facility; from a Texaco facility via the contractor's facility, or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of Texaco Environmental Services (TES).

This SOURCE RECORD BILL OF LADING was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the Texaco facility described below:

TEXACO #: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City, State, ZIP: \_\_\_\_\_

Texaco #624880235  
 500 GRAND AVE.  
 OAKLAND, CA

Well I.D.	Gals.	Well I.D.	Gals.
/		/	
Purge Water = 90		/	
/		/	
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Total gals. <u>95</u>		added rinse water <u>5</u>	
Total Gals. Recovered <u>95</u>			
<hr/>			
Job #:	<u>971105-01</u>		
Date	<u>11/5/17</u>		
Time	<u>12:00</u>		
Signature:	<u>[Signature]</u>		
<hr/>			
REC'D AT:	<u>BTS</u>		
Date:	<u>11/5/17</u>		
Time:	<u>17:10</u>		
Signature:	<u>[Signature]</u>		

Texaco Refining and Marketing Inc., Environmental Health and Safety  
Standard Operating Procedures  
for Groundwater Monitoring and Sampling

The following are routine procedures to be followed by personnel obtaining field information concerning petroleum product thickness and samples of groundwater during the monitoring and sampling of Texaco sites. These procedures are designed to assure that:

- Information and samples are properly collected.
- Samples are identified, preserved and transported in a manner such that they are representative of field conditions.
- Monitoring and sampling results are reproducible.

#### **Water Level Measurements**

Water level measurements are needed to document groundwater flow directions and calculate gradient. By gauging the level of water in a groundwater monitoring well and comparing the compiled data, calculations can be made that determine the direction the groundwater at the monitored well is flowing and the groundwater gradient between successive monitoring wells.

- An interface probe or electronic probe is generally used to gauge the level of water in a monitoring well. When using either probe, it is slowly lowered into the well until the oscillating alarm indicating water is heard. Raise the interface probe above the water level and lower back into the water at least three times to verify that the true depth to water is measured. The depth to water should always be measured from the same spot on the top of the well casing. The designate "Top of Casing" mark should be at the North side of the casing. Without moving the probe, read the numbers on the tape to determine the distance to water from the top of the well casing. A chalked, steel add-tape may also be used to gauge the level of water in a monitoring well. When using the steel tape, it is slowly lowered into the well until the chalked portion of the tape encounters water. Read the numbers on the tape to determine the distance from the predetermined top of the well casing. Raise the tape to the surface grade, re-chalk and lower it back into the water at least two times to verify that the true depth to water is measured. Record the depth to water on the Well Gauging Form and Groundwater Sampling Form.

#### **Petroleum Product Thickness Measurements**

If free phase petroleum hydrocarbons (product) are observed floating on the groundwater surface during the water level measurement, the thickness of the product will be measured in each appropriate well. Groundwater samples will not be collected for chemical analysis from wells containing product (even a sheen) unless specifically requested by the Project Coordinator. If the Project Coordinator requests that wells containing product be sampled, only those wells with product thickness of less than 0.01 foot will be sampled. Arrangements to bail, store, and dispose of product must be made separately. When product is stored, according to Texaco policy, it will be double-contained and disposed of within 90 days of generation. Product thickness will be measured using interface probes, and/or acrylic (clear plastic) bailers. The procedures for obtaining level and thickness measurements using each instrument are:

- The level of the top of the product will be measured with an interface probe. When product is suspected but not measurable with the interface probe, a visual evaluation can be made using clear bailers. A bailer will be lowered into the water/product surface so that the top of the bailer is NOT submerged; the bailer is then removed from the well

and the thickness of the product visually measured and documented on the Well Gauging Form.

- When the interface probe contact liquid, the visual/audible alarm on the reel will be activated. An oscillating alarm indicates water, a continuous alarm indicates hydrocarbon\*. To determine the exact thickness of a hydrocarbon layer, the probe should be slowly lowered to the air/hydrocarbon interface until the alarm is activated. With the probe at the exact point where the alarm comes on, read the numbers on the tape to determine the distance from the top of casing elevation mark. Next, lower the probe through the hydrocarbon layer and well into the water. An oscillating alarm will be obtained. The probe alarm changes from oscillating to continuous. The thickness of the hydrocarbon layer is determined by subtracting the first reading from the second reading. Record the calculated value on the Well Gauging Form and Groundwater Sampling Form.

\* The process described here is equipment specific. Follow the procedures applicable for your monitoring equipment.

### Groundwater Sampling

Groundwater samples will be collected from selected groundwater monitoring wells to provide data which will be statistically representative of local groundwater conditions at the site. Groundwater samples will be collected as follows:

- All measuring and sampling equipment will be decontaminated prior to sample collection from each well and documented on the Groundwater Sampling Form.
- Prior to sampling activity, the water level in the well will be measured and the minimum purge volume of each well will be calculated using the purge volume calculation portion of the Groundwater Sampling Form. A minimum of three casing volumes will be purged prior to sample collection. The actual total volume purged will be recorded on Groundwater Sampling Form.
- Prior to sampling, a submersible pump, centrifugal pump, peristaltic pump, or a Teflon or stainless steel bailer will be used to purge a minimum of three casing volumes from each well. Purge volumes will be estimated using a flow meter of a stopwatch and a bucket to estimate flow rate, from which a time to purge the required volume will be calculated. The pump will be lowered to a depth of two to three feet from bottom of the well. When bailers are used for purging, the bailer should be gently lowered into the water and allowed to fill, then removed. Purged water may be placed into 5-gallon buckets to determine the volume of groundwater removed. Care should be taken to not agitate the water which could release volatile organics.
- Whenever possible, groundwater parameters pH, temperature (in degrees Celsius [C]), specific conductance (in micromhos per centimeters squared [umhos]), and turbidity (in National Turbidity Units [NTU]) will be monitored and recorded on the Groundwater Sampling Form.
- If a well is purged dry before three casing volumes have been removed, the sample will be taken after the well has recovered to at least 80 percent of the static water level prior to purging or after 4 hours when sufficient water volume is available to meet analytical requirements, whichever comes first. Reasonable efforts will be made to avoid dewatering wells by using low-yield pumps as necessary.
- Water samples will be collected with a stainless steel or Teflon bailer. To reduce potential cross contamination, sampling should take place in order from least to most

contaminated wells. Bailer strings should be replaced between each well to avoid cross contamination from a bailer string which has absorbed contamination.

- Sample containers will be filled directly from the bailer.
- Use only sample containers prepared and provided by an analytical laboratory. Preservatives are required for some types of samples. Sample containers containing preservatives should be supplied by an analytical laboratory.
- For volatile organics analysis, each sample vial will be filled with sample water so that water stands above the lip of the vial. The cap should then be quickly placed on the vial and tightened securely. The vial should then be checked to ensure that no air bubbles are present prior to labeling the sample.
- Take site blank samples (trip and rinsate) using distilled water or laboratory supplied water from a known uncontaminated source. One trip blank and one rinsate blank sample for each site will be analyzed for each site sampling event.
- Once collected and labeled, all samples will be stored in a cooler maintained at 4 degrees Celsius using frozen water ice.

### Sample Custody Procedures

Sample custody procedures will be followed through sample collection, transfer, analysis and ultimate disposal. The purpose of these procedures is to assure that the integrity of samples is maintained during their collection and transfer. Sample quantities, types and locations will be determined before the actual field work begins. As few people as possible will handle samples. The field sampler is personally responsible for the care and custody of the collected samples until they are properly transferred.

Each sample will be labeled and sealed properly immediately after collection. Sample identification documents will be carefully prepared so that identification and chain-of-custody records can be maintained and sample identification documents that will be utilized during the field operations.

- Sample Identification Label
- Chain-of-Custody

Each separate sample will be identified using a label obtained from the laboratory. The sampler will complete all information, using a black waterproof pen, as follows:

The Site ID This is the name assigned to the particular sampling station.

The Sample Source This will be the name of the well location.

The Analysis Required This will be indicated for each sample using proper EPA reference number indicating analytical method.

The Date Taken This will be the date the sample was collected, using the format MM-DD-YY Example: 06-15-91

Noting the Time The time the sample was collected will be given in military time. Example: 1430

The Method of Preservation Preservation methods will be provided, specifying the type of preservation. For non-acidified samples, "ice" will be indicated.

The Sampler's Name This will be printed in the "Sampled By" section. The sampler's signature will be written in the "Signed" section.

There is potential that samples and analyses could be of an evidentiary nature. Therefore, the possession of samples must be traceable from the time samples are collected in the field until the analysis is completed and the data are entered as evidence. The tracing of the samples through the laboratory is accomplished by "chain-of-custody" procedures. Chain-of-Custody Forms will be completed for each set of samples. The sampler will sign the first "Relinquished By" line at the bottom of the chain of custody record, and will indicate the date and time of the custody transfer. Samples will not leave custody of the field technician until relinquished to another party. Custody is defined by the following criteria.

In the Actual Physical Possession When field personnel have sample in possession, they have "custody".

In View The samples are in the field personnel's view after being in their physical possession.

Special Areas Sample is kept in a locked area after being in physical possession.

Designated Area Sample is in a designated, locked-storage area.

Transfer of samples to an analytical laboratory will be done by use of a common carrier or personal delivery. Carrier personnel will personally secure samples and sample containers in such a way that no containers can be opened in transit. The person to whom the custody is being transferred will sign on the first "Received By" line of the chain-of-custody record, indicating that custody is being accepted by the carrier for all the samples listed on the sheet. For subsequent transfers of custody, the succeeding relinquish and receipt lines will be used.

#### **Equipment Decontamination**

All equipment that comes in contact with potentially contaminated soil or water will be decontaminated prior to and after each use (for example, after each sampling event). All purging and sampling equipment will be decontaminated with an Alconox wash and rinsed with deionized water. Decontamination water generated will be added to the purge water.